

## Core stability in young female dancers

Deborah Tassi<sup>1</sup> - Marco Cortesi<sup>1,2</sup> - Michela Cristina Turci<sup>3</sup>

<sup>1</sup> Università degli Studi di Milano, Corso di Laurea in Fisioterapia, Milano, Italia – <sup>2</sup> Fondazione Don Gnocchi IRCCS, Milano, Italia – <sup>3</sup> Università degli Studi di Milano, Dipartimento di Scienze Biomediche per la Salute, Milano, Italia

Core has been described as a corset stabilizing the trunk area, bordered by the diaphragm upwardly, the abdominal muscular complex anterior-laterally, the spinal and gluteal muscles posteriorly and by the pelvic floor and the muscles of the pelvic girdle inferiorly (1). Core Stability (CS) is intended as a neuromuscular skill of trunk control, assisted by passive (ligaments) and active (muscles) elements. The effects of CS training on the strength, endurance and balance of young female dancers were measured. Thirty three young women participated (22 amateur dancers; 11 sedentary people; age  $21 \pm 5.4$ yr) were asked to perform endurance (2), strength, and balance (3) tests (Session I) that were repeated after 10 weeks (Session II). During this period, 11 dancers (experimental group, EG) were randomly selected to attend specific training for CS in addition to traditional dancing exercises; 11 dancers only performed regular dance training (dance group, DG); the sedentary people did not carry out any exercise (control group, CG). Within each group and session, descriptive statistics of test performances were computed. Differences between groups and sessions were assessed, setting the level of statistical significance at 5% ( $p \leq 0.05$ ) for all comparisons. In both sessions, EG and DG were stronger and more resistant than CG and demonstrated better balance in two balance tests ( $p < 0.05$ ). In Session II, performances generally improved in both EG and in DG. EG dancers significantly improved their endurance performances in Session II ( $p < 0.01$ ). Hence dance training in young female amateurs could be considered an effective exercise to enhance strength, endurance and balance. Specific CS training seemed to have favourable effects while improving endurance in female dancers. Further studies should be conducted on a larger sample of dancers, either men or women, to determine the efficacy of CS both in performance and in injury prevention.

### References

- [1] Pope et al. (1985) Biomechanical definitions of spinal instability. *Spine* 10: 3; 255-6.
- [2] Mc Gill et al. (1999) Endurance times for low back stabilization exercises: clinical targets for testing and training from a normal database. *Arch Phys Med Rehabil* 80: 8; 941-4.
- [3] Kinzey et al. (1998) The reliability of the Star-Excursion Test in assessing dynamic balance. *J Orthop Sports Phys Ther* 27: 5; 356-60.

### Keywords

Balance; core stability; core strength; dance; injuries.